lium to appear. The cortex, which is comprised under the "frontal" subdivision, is more extensive in man than in the ape. Campbell does not dispute Flechsig's doctrine that the frontal lobe must be a higher association centre, but accepts cautiously the evident support afforded by the atrophy in this region in cases of dementia, inasmuch as the cortex of the frontal lobe is built upon an extremely weak and collapsible framework of nerve fibres, especially when compared with the central gyri, occipital lobe and other parts. Cortex of the parietal lobe. Campbell "plumps" for the view that the post-central gyrus is the main terminus for common sensory impressions. Histologically the difference between the two gyri which are divided by the Rolandic fissure is even microscopically noticeable. Further, he advances in support of the sensory nature of the hinder gyrus, first, early medullation, as in the posterior tracts of the cord; second, the work on secondary degeneration of the cortical lemniscus (upper sensory neurone); and third, changes which he finds in the post-central gyrus in tabes, a disease as clearly restricted to the sensory neurones as amytrophic lateral sclerosis is to the motor.

Adjoining the "post-central" area proper, which may be regarded as a primary centre for the recognition of the simplest components of common sensation, is an area containing higher evolutionary "sensory centres," in which lesions may give rise to isolated disturbances of higher sensory components, *e. g.*, astereognosis, loss of muscle sense, etc., sensory components involving a higher psychic process. These are included in the "intermediate post-central area." Between this "sensory" area in front and the "visual" area is a vast area embracing Flechsig's posterior association area, an area in close anatomic relation with all forms of sensory components, both common and special.

This area is probably a field for the further elaboration and interpretation of impressions primarily received by the various sensory areas. In phylogenetic development the progressive increase in size of the frontal lobe, which Hitzig contended was proportionate to intellectual capacity, *is not more marked than a similar progressive increase in the expansion of the parietal lobe.* In upward evolution both frontal and parietal lobes undergo equal expansion. An interesting point made by Campbell is that in agenesis the parts most prone to suffer are those which are phylogenetically youngest. In three cases cited (idiots) all the motor and sensory centres were well developed, but the frontal gyri anterior to the pre-central and the parietal behind the post-central areas showed marked microgyria. The visual cortex is divisible into two areas; one follows closely the calcarine fissure (marked by the line of Gennari), and is probably the primary centre for visual impressions; the second, an investing area called the visuo-psychic, serves for further elaboration of these impressions. The primary auditory area Campbell locates in the transverse temporal gyri, while the audito-psychic centre corresponds in distribution to the well-known "word-hearing" centre. Two plates embodying these views accompany the paper.

4. Do not require reviewing.
5. Largely critical; not adapted for review.

Wolfstein.

MISCELLANY

Optic Neuritis and Facial Paralysis. E. A. Shumway (Journal A. M. A., Feb. 11).

The author reports a case of post-papillitic optic atrophy with a history of prior right-sided facial paralysis with pain in jaw, and with a noticeable flattening of the right side of the face from loss of subcutaneous fat, together with enophthalmus, all on the right side, while the optic atrophy was bilateral, most marked on the left. He finds in literature only seven similar cases of this association of facial paralysis and optic neuritis, though a number of cases of optic neuritis have been reported in connection with polyneuritis. The atrophy and sinking of the eyeball is evidently rarer, as he has found no reports of a similar case. He has, however, been able to examine a case of Dr. Spiller's with flattening of the face and enophthalmus following rheumatic facial paralysis, and implying, he thinks, as in his own case, some involvement of the seventh nerve. There were chloroanemic and disordered menstrual symptoms in Shumway's case, but he does not attribute to them the optic atrophy. His conclusions are given as follows: "1. Optic neuritis is occasionally associated with facial paralysis, either alone or as part of a multiple neuritis; the etiologic factor may be rheumatism, but at times appears to be infection, the nature of which is as yet undetermined. The optic neuritis is usually of the retrobulbar type, but a decided papillitis may be present, and be followed by more or less marked atrophy. In cases of multiple neuritis of the cranial nerves the eye grounds should be examined for possible optic nerve complication. 2. In facial paralysis, flattening of the face and enopthalmus may appear, and are to be considered as due to a neuritis of the fifth nerve, and not to involvement of possible sensory fibres in the facial nerve."

BLANK CARTRIDGE TETANUS. D. H. Dolley (Journal of the A. M. A., Feb. 11, 1905).

Dolley has investigated blank cartridges from several makers with special reference to their bacteriologic contents, employing cultural and incubation, as well as microscopic methods. The findings were rather negative as regards the tetanus bacillus, but the *Bacillus aerogenes capsulatus* (Welch) was present in a large proportion of the cartridges examined. Notwithstanding this fact, tetanic symptoms developed in a number of animals inoculated, and in still other animals inoculated from cultures from these. His conclusions are: 1. *B aerogenes capsulatus* (Welch) is present in a large proportion of the wads of the three makes of the cartridges examined. 2. The wads of the Peters Company, inoculated in rats, guinea-pigs and rabbits, produced characteristic symptoms of tetanus. 3. The powder of the three varieties of cartridges examined was negative for *B. tetani* and *B. aerogenes capsulatus*. 4. His efforts at isolation of *B. tetani* from the wads have so far been unsuccessful. 5. There is abundant evidence, from clinical observations and animal experiments, that the wads of certain blank cartridges contain *B. tetani*. He says that Dr. Welch told him that he considered it diagnostic to see an animal in convulsions.

CHOREA. W. G. Spiller (Journal A. M. A., Feb. 11, 1905).

Spiller thinks that the relation of chorea to rheumatism has been greatly over-estimated. In most of his cases he could not detect it. He also has not been able to recognize any peculiar facies of the disease; nor does he agree with Gordon and Eshner that there is any peculiar characteristic of the patella reflex in chorea. The arsenical treatment of the disease does not seem to be without disadvantages, and should be watched very closely. He has seen arsenical neuritis and idiosyncrasy. The pathology of the disorder is still obscure. The "chorea bodies" are not characteristic. Apoplectic hemihypertonia is distinct from athetosis; the spasm is tonic, unilateral, associated with a little weakness, but not with contractures; develops after an apoplectic attack, and is probably due to irritation of the motor fibres below the cortex. Spiller does not accept Kahler and Pick's theory of the choreiform movements being caused by irritation of the pyramidal tract. It is hard to understand the comparative rarity of hemichorea if this were the case.